

ROY F. WESTON, INC. 000001

**LETTER REPORT
FOR THE
BOWERS BATTERY SITE
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO
TDD: S05-0012-022**

EPA Region 5 Records Ctr.
253029

WESTON

**LETTER REPORT
FOR THE
BOWERS BATTERY SITE
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO
TDD: S05-0012-022**

MARCH 16, 2001

PREPARED FOR:

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
EMERGENCY RESPONSE BRANCH
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604**

PREPARED BY:

 CPG
JEFFREY W. KIMBLE, PROJECT LEAD START

FOR DATE: 3/15/01

REVIEWED AND
APPROVED BY:

 for
BRADFORD S. WHITE, START PROJECT MANAGER

DATE: 3/15/01



Roy F. Weston, Inc.
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Miamisburg, Ohio 45342-3669
937-384-4200 • Fax 937-384-4201
www.rfweston.com

March 16, 2001

Ms. Gail Nabsny
START Project Officer
Emergency Response Branch
U.S. Environmental Protection Agency (SE-5J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Bowers Battery Site
New Philadelphia, Tuscarawas County, Ohio
TDD: S05-0012-022

Dear Ms. Nabsny:

In December 2000, the United States Environmental Protection Agency (U.S. EPA) tasked the Roy F. Weston, Inc., Superfund Technical Assessment and Response Team 2 (START) contractor, to conduct soil sampling activities to define the extent of contamination at the Bowers Battery site in New Philadelphia, Ohio. The contamination resulted from buried car batteries. A previous sampling event was conducted by the prior START contractor and summarized findings can be found in the letter report to you dated December 15, 2000. The current sampling and analytical results were conducted to augment this previous work and to complete an extent of contamination survey at the Bowers Battery Site (hereafter referred to as the Site). START was tasked under Technical Direction Document (TDD) number S05-0012-022 to conduct site assessment, sampling, and documentation activities at the Site. Site activities were conducted on December 20 and 21, 2000, by START members Jeff Kimble and Brian Kelly under the direction of U.S. EPA Region 5 On-Scene Coordinator (OSC) Joe Fredle.

Site Location and Background

The Site encompasses four residential properties, a VFW post, and a gravel parking lot, all of which are located at the intersection of 5th Street NW and Park Avenue NW in New Philadelphia, Tuscarawas County, Ohio. The geographical coordinates of the Site are latitude 40°E29'54.5"N and longitude 81°E27'10.0"W (Attachment A). Attachment B shows the general site features. The overturned soil, where the batteries were originally observed, is located in the back yard of 463 5th Street NW, which is bordered by the rear parking lot for the VFW. The Site is bordered to the north by a light industrial property and the gravel parking lot (previously a railroad bed); to the east by a brick building; to the south by the gravel parking lot and two residences on Park Avenue NW, and to the west by 5th Street NW (Attachment C). Prior to conducting field activities, START representatives coordinated a utilities check for all properties at the Site.

Ms. Gail Nabasny
U.S. EPA

March 16, 2001

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Site Activities

On December 20, 2000, at approximately 1000 hours, START representatives met OSC Fredle at the Site. At approximately 1020 hours, OSC Fredle and the START representatives began designating soil sampling locations in the side yard of 467 5th Street NW. The sample points were prefixed with an "X" and numbered in sequential order to distinguish them from the samples from the first investigation. OSC Fredle continued to select and flag sample points as START representatives initiated sampling activities at sample points X01, X02 and X03. START collected three separate soil samples from each location at the following depths: (A) 0 to 0.5 feet below ground surface (bgs), (B) 0.5 to 1.5 feet bgs, and (C) 1.5 to 2 feet bgs. Therefore, each location would have three samples (such as X01-A, X01-B, and X01-C).

At every sampling location the soil collected from each depth interval was homogenized in a dedicated aluminum pan for each sample (A, B, and C). Each sample was placed into a sealable plastic bag and labeled for analysis. The Ohio EPA screened these samples for lead in its office laboratory using an X-ray fluorometer (XRF) Spectrace 9000. Additionally, every fifth sample was split and the split was placed into a 4-ounce glass jar with a Teflon™ lid. These samples were collected for analysis at an independent laboratory for total lead and having the results compared to those of the XRF analysis. Results for all samples are presented in Attachment D.

OSC Fredle demarcated sample points X04 through X10 in the parking lot area of the VFW (as seen in the site features map). To collect these samples in the hard gravel areas, START representatives utilized a powered hand auger and decontaminated the auger bit between each sample location. At sample location X06, "C" sample was not collected due to refusal of the auger bit. START representatives completed samples through X08 before demobilizing for the night.

OSC Fredle requested assistance from the Ohio EPA in bringing a Geoprobe™ unit and two operators to the site to collect samples at four locations. On December 21, 2000, STARTs resumed sampling and collected X09 and X10 prior to the Ohio EPA arriving on site. At approximately 0945 hours the Ohio EPA Geoprobe™ and operators arrived on site. Four locations were identified for sampling and were identified as Geo-1, Geo-2, Geo-3, and Geo-4 (Attachment B). In addition to collecting samples from the probe cores for XRF total lead analysis, four samples were selected by OSC Fredle to be analyzed at an independent laboratory for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), antimony, and Resource Recovery and Conservation Act (RCRA) metals. Each probe was pushed to a depth of approximately 16 feet bgs with varying degrees of recovery obtained in each core. OSC Fredle designated the intervals at which samples would be collected from the cores. Results are presented in Attachment D. During the sample collection activity for the Geoprobe™ samples, one START representative completed sampling of X11 through X15. All XRF samples were transported from the Site by the Ohio EPA. START representatives properly labeled and packaged the samples slated for laboratory analysis of total lead, VOCs, SVOCs, antimony, and RCRA metals. These samples were hand-delivered with chain-of-custody to Severn Trent Laboratories, Inc., in North Canton, Ohio.



Ms. Gail Nabasny
U.S. EPA

March 16, 2001

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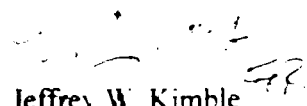
Analytical Results

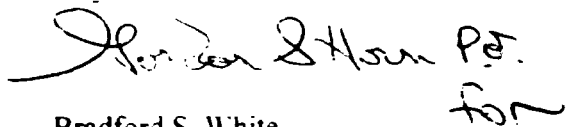
XRF field screening and laboratory analytical results for soil samples collected by START during this sampling event are shown in Attachment D. Concentrations of lead in the soil samples were as high as 1,770 parts per million (ppm) according to the laboratory results for total lead and as high as 10,020 for XRF analysis results for total lead. Several of the lead results from the split samples show large differences between the XRF analytical and the laboratory analytical. These disparities may be a result of difficulties encountered while attempting to process the samples prior to splitting. Due to extremely cold temperatures during the sampling event, the soil being mixed in the disposable aluminum pans was freezing and clumping during the mixing process. This could have affected the homogenizing of the sample material leading to the difference in the results. Lead concentrations at each sampling location were the highest in the "A" and "B" depth intervals (i.e., 0 to 1.5 feet bgs) which is consistent with data from the previous sampling events at the site.

This letter report completes the reporting requirement under this TDD. Please do not hesitate to call if any clarification is needed or if this office can be of further assistance.

Very truly yours,

ROY F. WESTON, INC.


Jeffrey W. Kimble
Project Lead START

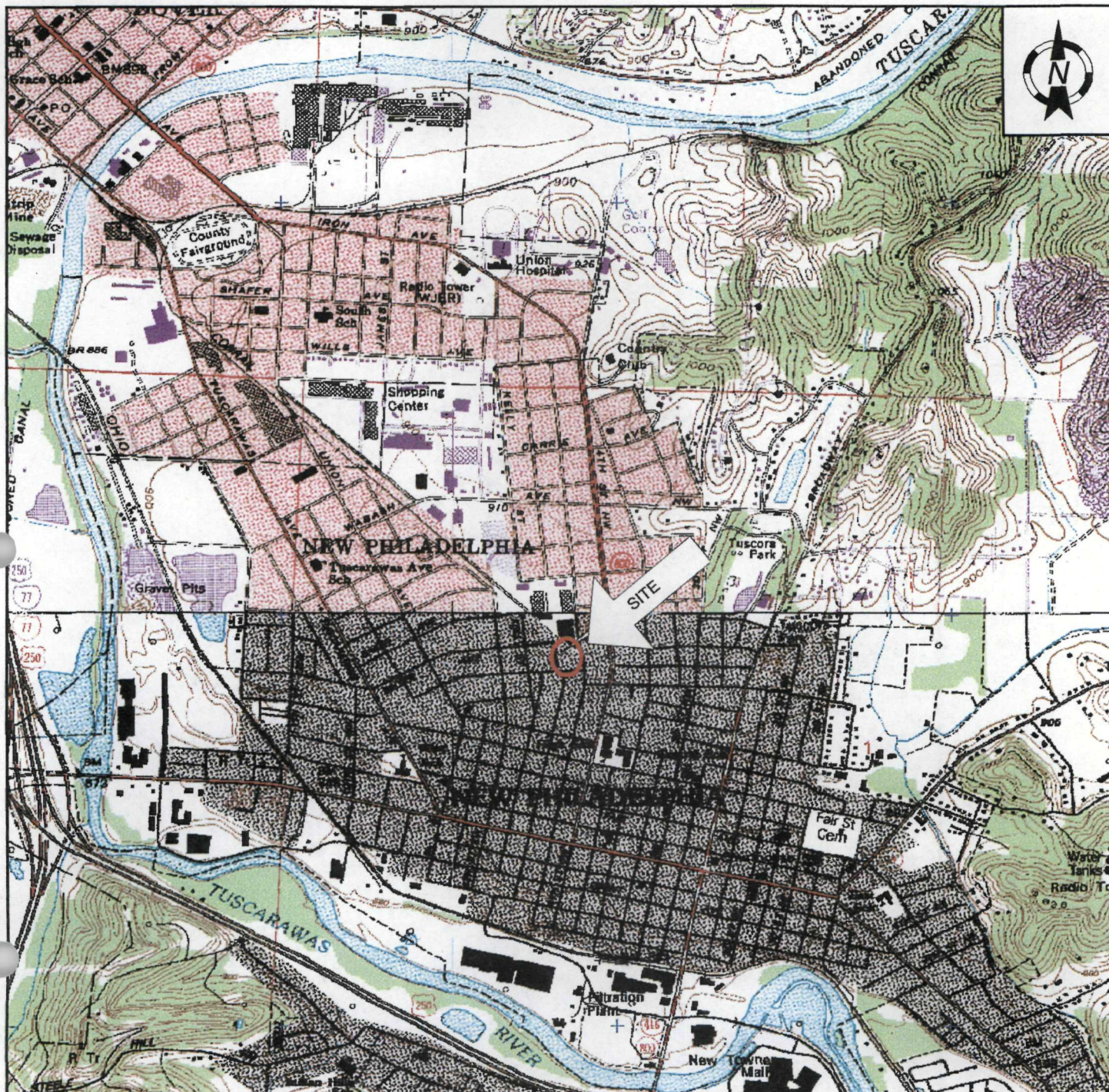

Bradford S. White
START Project Manager

Attachments: A Site Location Map
B Site Features and Sampling Map
C Annotated Photolog
D Soil Sampling Analytical Results
E Data Review Memoranda

cc: Joe Fredle, U.S. EPA OSC, Westlake, Ohio
File

ATTACHMENT A

SITE LOCATION MAP



Quadrangle Location



Roy F. Weston, Inc.

Region 5 - Superfund Technical Assessment and Response Team

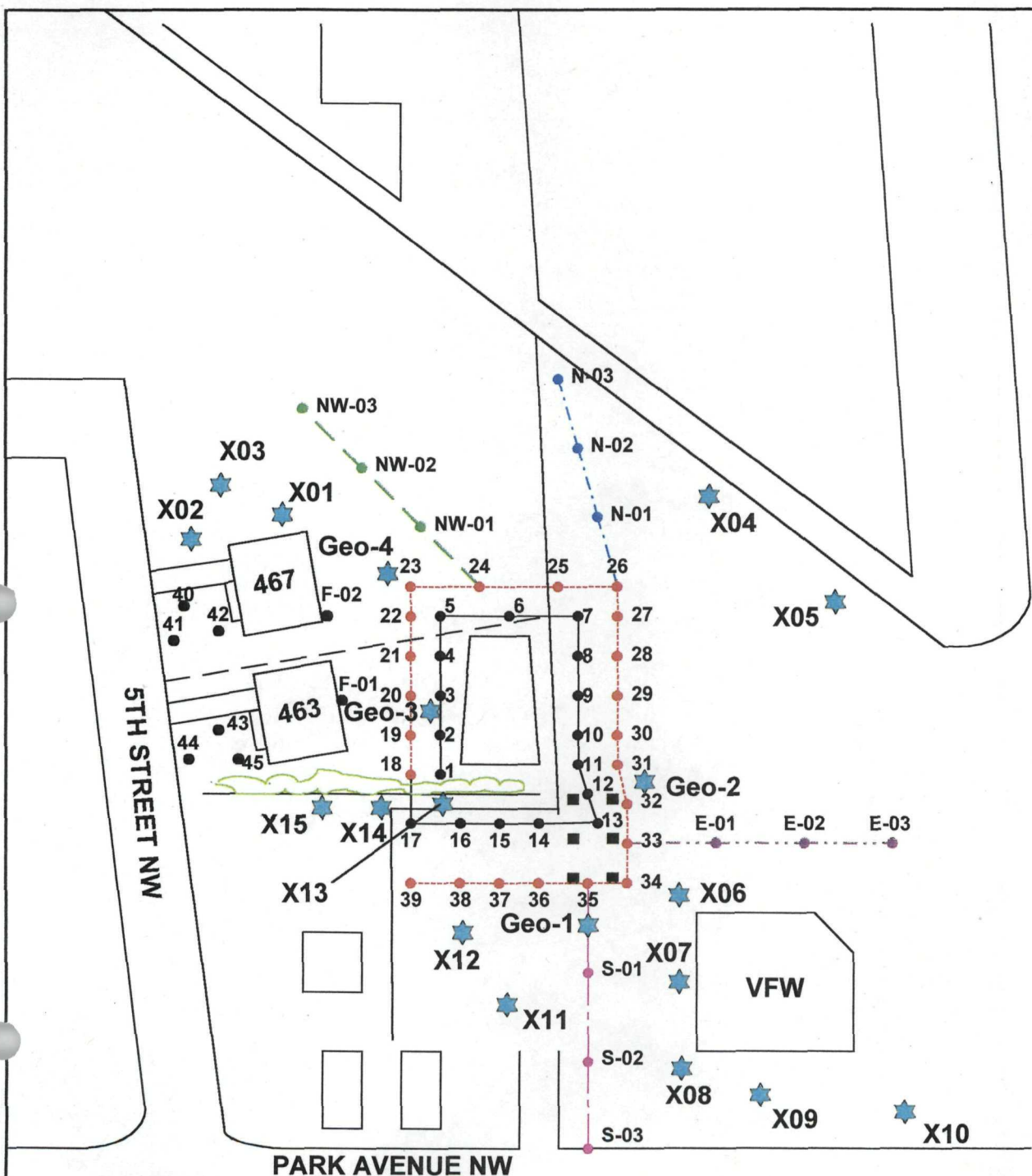
7123 Pearl Road, Suite 101

Middleburg Heights, Ohio 44130





TITLE:	Site Location Map	ATTACHMENT:	A
SITE:	Bowers Battery Site	SCALE:	Not to scale
CITY:	New Philadelphia	STATE:	Ohio
SOURCE:	USGS Topographic Map 7.5' Series New Philadelphia Quadrangle Ohio-Tuscarawas County (Digital version provided by U.S. EPA)	TDD:	S05-0012-022
		DATE:	1962
		REVISED:	1985

ATTACHMENT B

SITE FEATURES AND SAMPLING MAP



LEGEND

-  Brushline
-  Previous Sample Points
-  House
-  Current Sample Point



Roy F. Weston, Inc.

Region 5 - Superfund Technical Assessment and Response Team
7123 Pearl Road, Suite 101
Middleburg Heights, Ohio 44130

TITLE:	Site Features and Sampling Map	ATTACHMENT:	B
SITE:	Bowers Battery Site	SCALE:	Not to scale
CITY:	New Philadelphia	STATE:	Ohio
TDD:	S05-0012-022		
SOURCE:	Based on map provided by US EPA	DATE:	2001

ATTACHMENT C
ANNOTATED PHOTOLOG



SITE: Bowers Battery

PHOTO NO: 1

DIRECTION: Northeast

PHOTOGRAPHER: J. Kimble

DATE: December 20, 2000

SUBJECT: View of the VFW Post.



SITE: Bowers Battery

PHOTO NO: 2

DIRECTION: South

PHOTOGRAPHER: J. Kimble

DATE: December 21, 2000

SUBJECT: View of the north portion of the site, including the VFW and two residences.



SITE: Bowers Battery

PHOTO NO: 3

DIRECTION: Southeast

PHOTOGRAPHER: J. Kimble

DATE: December 21, 2000

SUBJECT: View of the area where a resident discovered buried batteries.



SITE: Bowers Battery

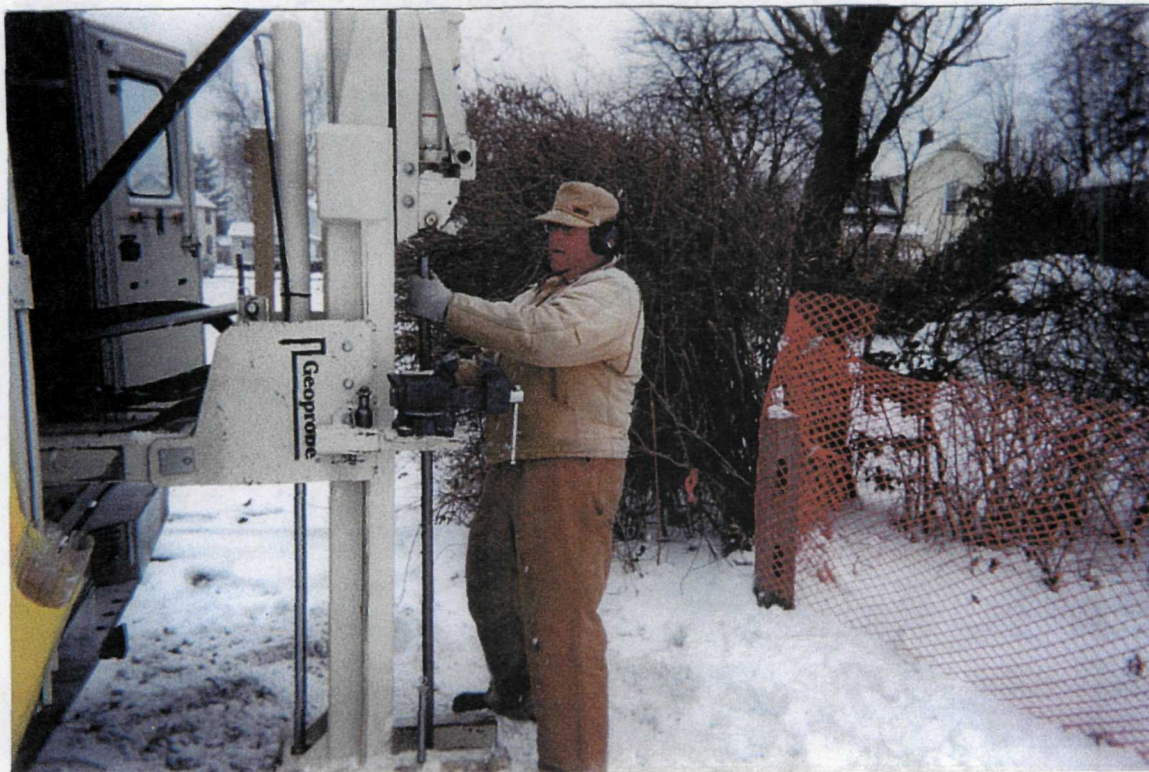
PHOTO NO: 4

DIRECTION: Northwest

PHOTOGRAPHER: J. Kimble

DATE: December 21, 2000

SUBJECT: View of START collecting sample X12. Sample was collected in the residents garden.



SITE: Bowers Battery

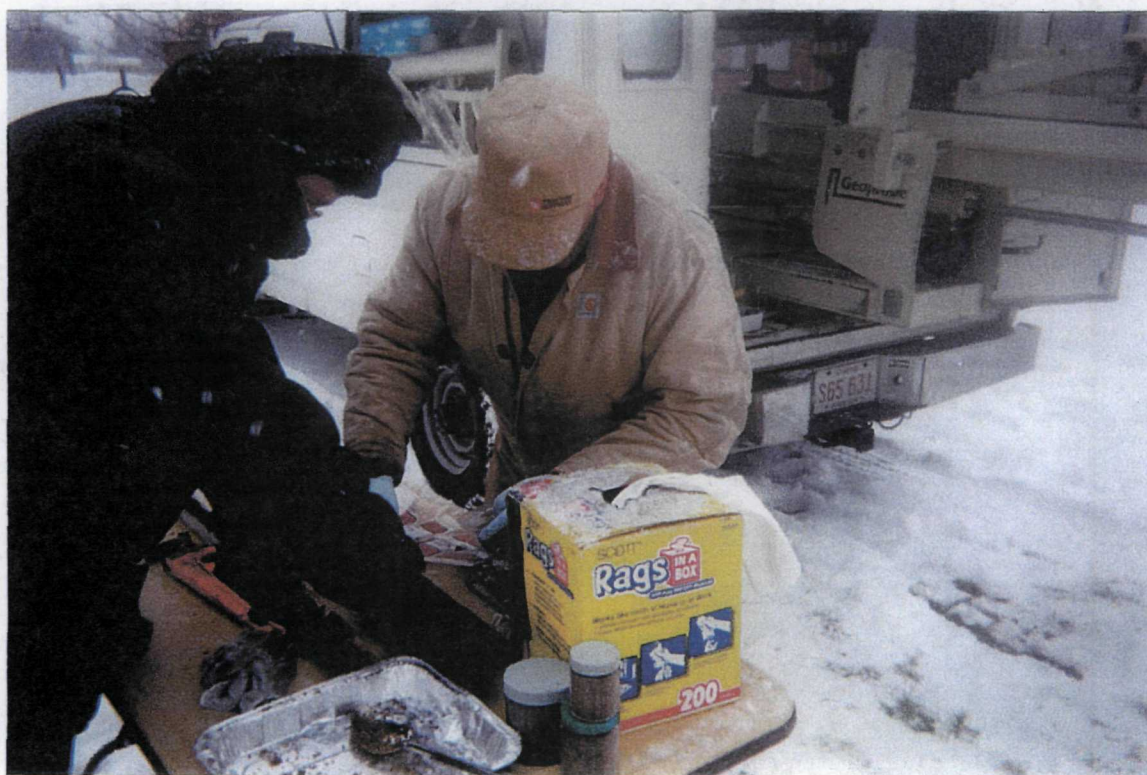
PHOTO NO: 5

DIRECTION: West

PHOTOGRAPHER: J. Kimble

DATE: December 21, 2000

SUBJECT: View of Ohio EPA Geoprobe unit and operator collecting GEO-2 samples.



SITE: Bowers Battery

PHOTO NO: 6

DIRECTION: Northeast

PHOTOGRAPHER: J. Kimble

DATE: December 21, 2000

SUBJECT: View of Ohio EPA workers and OSC Fredle during sample processing.



SITE: Bowers Battery

PHOTO NO: 7

DIRECTION: Down

PHOTOGRAPHER: J. Kimble

DATE: December 21, 2000

SUBJECT: View of samples in bags for Ohio EPA's XRF analysis for lead.



SITE: Bowers Battery

PHOTO NO: 8

DIRECTION: Down

PHOTOGRAPHER: J. Kimble

DATE: December 21, 2000

SUBJECT: Samples from GEO-1 geoprobe hole which were sent to an independent lab for analysis.

ATTACHMENT D

SOIL SAMPLING ANALYTICAL RESULTS

SOIL SAMPLING ANALYTICAL RESULTS
BOWERS BATTERY SITE
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO
Sample Collection Dates: December 20-21, 2000
(units = mg/kg)

[illegible]

Attachment D

SOIL SAMPLING ANALYTICAL RESULTS
BOWERS BATTERY SITE
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO
Sample Collection Dates: December 20-21, 2000
(units = mg/kg)

[illegible]

SOIL SAMPLING ANALYTICAL RESULTS
BOWERS BATTERY SITE
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO
Sample Collection Dates: December 20-21, 2000
(units = mg/kg)

[illegible]

SOIL SAMPLING ANALYTICAL RESULTS
BOWERS BATTERY SITE
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO
Sample Collection Dates: December 20-21, 2000
(units = mg/kg)

[illegible]

SOIL SAMPLING ANALYTICAL RESULTS
BOWERS BATTERY SITE
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO
Sample Collection Dates: December 20-21, 2000
(units = mg/kg)

[illegible]

Attachment D

SOIL SAMPLING ANALYTICAL RESULTS BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO

Sample Collection Dates: December 20-21, 2000

(units - mg/kg)

Sample Designation	XRF Spectrace 9000 - Lead	Analytical Parameters								
		SW846 RCRA Total Metals Plus Antimony								
		Lead	Antimony	Arsenic	Barium	Cadmium	Chromium	Selenium	Silver	Mercury
GF-01/2-4'	16.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
GF-01/4-6'	43.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
GF-04/10-12'	NA	4.6	NA	6.9	11.4 B	0.063 B	3.1	NA	NA	0.018 B
Sample Designation	Volatile Organic Compounds - SW846 (units - µg/kg)									
	Acetone	Methylene Chloride								
GF-01/9-13'	5.2 J,B	ND								
GF-02/1-4'	ND	3.2 J,B								
GF-03/2-4'	4.0 J,B	ND								
GF-04/10-12'	4.8 J,B	ND								

Key:

Sample Designations -A designates surface to 6-inch (") below ground surface (BGS) sample, -B designates 6" to 18" BGS sample, and -C designates 18" to 24" BGS sample.

* = duplicate sample.

ND = not detected.

NA = Not applicable. Sample was not analyzed for this parameter.

J = estimated value.

B = Method blank contamination present.

' = feet BGS.

Source: Samples were analyzed by Severn Trent Laboratories, Inc., in North Canton, Ohio under analytical TDD S05-0012-032.

XRF samples were analyzed, and results provided by, the Ohio EPA.

ATTACHMENT E

DATA REVIEW MEMORANDA

12634.001.001.0022W.O.#AOL220165

Bowers Battery
DATA VALIDATION

Severn Trent Laboratories, North Canton, Ohio

Lot# AOL220165

Soil Analyses Methods 6010B, 8260B, and 8270C

Non-methane Organic Compounds

Total Petroleum Hydrocarbons

Total Lead

1.

<u>SampleID</u>	<u>Lab ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>VOA Analysis</u>	<u>SemiVOA Analysis</u>	<u>Metal Analysis</u>
X01A	AOL220165-001	Soil	12/20/00	NA	NA	12/28/00
X02C	AOL220165-002	Soil	12/20/00	NA	NA	12/28/00
X04B-1	AOL220165-003	Soil	12/20/00	NA	NA	12/28/00
X04B-2	AOL220165-004	Soil	12/20/00	NA	NA	12/28/00
X06A	AOL220165-005	Soil	12/20/00	NA	NA	12/28/00- 12/29/00
X07C	AOL220165-006	Soil	12/20/00	NA	NA	12/28/00
X09B	AOL220165-007	Soil	12/21/00	NA	NA	12/28/00
X11A	AOL220165-008	Soil	12/21/00	NA	NA	12/28/00
X12C-1	AOL220165-009	Soil	12/21/00	NA	NA	12/28/00
X12C-2	AOL220165-010	Soil	12/21/00	NA	NA	12/28/00
X14-B	AOL220165-011	Soil	12/21/00	NA	NA	12/28/00
Geo1 9-13	AOL220165-012	Soil	12/21/00	12/26/00	1/3/01	12/28/00- 12/29/00
Geo2 1-4	AOL220165-013	Soil	12/21/00	12/28/00	1/3/01	12/28/00- 12/29/00
Geo3 2-4	AOL220165-014	Soil	12/21/00	12/26/00	1/3/01	12/28/00- 12/29/00
Geo4 10-1	AOL220165-015	Soil	12/21/00	12/28/00	1/3/01	12/28/00- 12/29/00

2. Holding Times - Acceptable

The samples were collected on 12/20/00 through 12/21/00 and received in good condition by the laboratory. Volatile analysis took place on 12/26/00 and 12/28/00. Semivolatile analysis took place on 1/3/01. Metals analysis took place on 12/28/00 and 12/29/00. All analyses were within the holding time.

3. GC/MS Instrument Performance Check – Not provided

4. Initial Calibration – Not provided

5. Continuing Calibration – Not provided

Soil Analyses Methods 6010B, 8260B, and 8270C

Non-methane Organic Compounds

Total Petroleum Hydrocarbons

W.O. #AOL220165

6. Blanks - Acceptable

Two method blanks associated with volatile analysis were reported, on 12/26/00 and 12/28/00. The volatile method blank ran on 12/26/00 was contaminated with Acetone at 4.2ppm. Two samples associated with this blank (Geo3 2-4 and Geo4 10-12) also reported acetone. The volatile method blank ran on 12/28/00 was contaminated with 3.2ppm methylene chloride. One sample associated with this blank (Geo2 1-4) also reported methylene chloride. Both methylene chloride and acetone are common volatile laboratory contaminants and the results of these blanks are less than 10x the qualified amount amount no action was taken. The amount of contamination found in samples Geo3 2-4, Geo4 10-12, and Geo2 1-4 was less than 5x the amount found in the blank therefore no action was taken for the samples.

One method blank associated with semivolatile analysis was reported on 1/3/01. No contaminants were found in this blank.

One method blank associated with metal analysis was reported on 12/28/00-12/29/00. Antimony was found at 0.82ppm and Barium was found at 0.17ppm. Both results were under the IDL (instrument reporting limit) therefore are acceptable.

7. System Monitoring Compounds - Acceptable

Recoveries for system monitoring compounds in all samples and blank analyzed for volatiles, semivolatiles, ~~and metals~~ were found to be inside of the target range specified by the method. *and* *3/6/01*

8. Matrix Spike/ Matrix Spike Duplicate - Acceptable

Matrix spike samples were reported for all analyses. For volatile and semivolatile analyses percent recovery and relative percent difference were acceptable. In the metals analysis the percent recovery for Antimony was 63%, which is below the acceptable value (75-125%). Therefore all samples associated with Antimony analysis are qualified estimated (UJ).

9. Laboratory Control Sample - Acceptable

Percent recovery for volatile, semivolatile, and metal analysis were within the quality control limits.

10. Field Duplicates-Not provided

11. Laboratory Duplicates- Not provided

12. Internal Standards - Not provided

13. Target Compound Identification - Not provided

12634.001.001.0022W.O.#AOL220165

Soil Analyses Methods 6010B, 8260B, and 8270C

Non-methane Organic Compounds

Total Petroleum Hydrocarbons

W.O. #AOL220165

14. Overall Assessment of the Data – Acceptable

All of the volatile, semivolatile, and metal samples results are acceptable for use as reported the time the standard was

Validator: Heidi Nemeth Date: 1/29/01

Linda Kowalski 3/6/01

SEVERN

TRENT

SERVICES

STL North Canton

4101 Shuffel Drive NW

North Canton, OH 44720-6961

Tel: 330 497 9396

Fax: 330 497 0772

www.stl-inc.com

ANALYTICAL REPORT

BOWERS BATTERY SITE

Lot #: A0L220165

Linda Korobka

Roy F Weston of Michigan

Suite 100

2501 Jolly Road

Okemos, MI 48864

SEVERN TRENT LABORATORIES, INC.

Rebecca Strait
Rebecca L. Strait
Project Manager

January 8, 2001

CASE NARRATIVE

A0L220165

The following report contains the analytical results for fifteen solid samples submitted to STL North Canton by Roy F. Weston of Michigan from the Bowers Battery Site. The samples were received December 21, 2000, according to documented sample acceptance procedures.

STL North Canton utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the analytical method summary page in accordance with the methods indicated. A summary of QC data for these analyses is included at the rear of the report.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 0.1° C. The samples were received in wet ice.

GC/MS VOLATILES

Samples that contained concentrations of target analyte(s) at a reportable level in the associated Method Blank(s) were flagged with "B". All target analytes in the Method Blank must be below the reporting limit (RL) or the associated sample(s) must be ND with the exception of common laboratory contaminants.

Samples that contain results between the MDL and the RL were flagged with "J". There is the possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

METALS

Samples that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive of mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank \pm the standard reporting limit (SRL).

The samples had elevated reporting limits due to matrix interferences or limited sample volume. Refer to the sample report pages for the affected analyte(s).

EXECUTIVE SUMMARY - Detection Highlights

A0L220165

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
X01A 12/20/00 10:55 001				
Lead	1280	0.39	mg/kg	SW846 6010B
Percent Solids	77.6	10.0	%	MCAWW 160.3 MOD
X02C 12/20/00 12:30 002				
Lead	66.1	0.35	mg/kg	SW846 6010B
Percent Solids	85.2	10.0	%	MCAWW 160.3 MOD
X04B-1 12/20/00 14:40 003				
Lead	26.6	0.35	mg/kg	SW846 6010B
Percent Solids	84.6	10.0	%	MCAWW 160.3 MOD
X04B-2 12/20/00 14:43 004				
Lead	28.2	0.35	mg/kg	SW846 6010B
Percent Solids	84.6	10.0	%	MCAWW 160.3 MOD
X06A 12/20/00 16:10 005				
Lead	1770	3.5	mg/kg	SW846 6010B
Percent Solids	86.7	10.0	%	MCAWW 160.3 MOD
X07C 12/20/00 18:10 006				
Lead	319	0.36	mg/kg	SW846 6010B
Percent Solids	84.4	10.0	%	MCAWW 160.3 MOD
X09B 12/21/00 08:45 007				
Lead	165	0.34	mg/kg	SW846 6010B
Percent Solids	88.7	10.0	%	MCAWW 160.3 MOD
X11A 12/21/00 11:30 008				
Lead	829	0.33	mg/kg	SW846 6010B
Percent Solids	89.9	10.0	%	MCAWW 160.3 MOD
X12C-1 12/21/00 13:15 009				
Lead	26.5	0.35	mg/kg	SW846 6010B
Percent Solids	86.0	10.0	%	MCAWW 160.3 MOD

(Continued on next page)

Zkade
3/6/01

EXECUTIVE SUMMARY - Detection Highlights

A0L220165

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
X12C-2 12/21/00 13:15 010				
Lead	19.4	0.36	mg/kg	SW846 6010B
Percent Solids	84.4	10.0	%	MCAWW 160.3 MOD
X14B 12/21/00 15:00 011				
Lead	182	0.36	mg/kg	SW846 6010B
Percent Solids	82.8	10.0	%	MCAWW 160.3 MOD
GBO1 9-13 12/21/00 10:50 012				
Antimony	0.82 B	1.1	mg/kg	SW846 6010B
Arsenic	0.36 B	1.1	mg/kg	SW846 6010B
Lead	20.7	0.33	mg/kg	SW846 6010B
Barium	33.1	21.8	mg/kg	SW846 6010B
Chromium	0.70 B	1.1	mg/kg	SW846 6010B
Acetone	5.2 J, B	22	ug/kg	SW846 8260B
Percent Solids	91.8	10.0	%	MCAWW 160.3 MOD
GBO2 1-4 12/21/00 12:00 013				
Mercury	0.032 B	0.12	mg/kg	SW846 7471A
Antimony	0.78 B	1.2	mg/kg	SW846 6010B
Arsenic	11.0	1.2	mg/kg	SW846 6010B
Selenium	0.48 B	0.58	mg/kg	SW846 6010B
Lead	24.2	0.35	mg/kg	SW846 6010B
Barium	98.0	23.2	mg/kg	SW846 6010B
Cadmium	0.93	0.58	mg/kg	SW846 6010B
Chromium	12.3	1.2	mg/kg	SW846 6010B
Methylene chloride	3.2 J, B	5.8	ug/kg	SW846 8260B
Percent Solids	86.1	10.0	%	MCAWW 160.3 MOD
GBO3 2-4 12/21/00 14:20 014				
Mercury	0.045 B	0.12	mg/kg	SW846 7471A
Antimony	0.65 B	1.2	mg/kg	SW846 6010B
Arsenic	9.0	1.2	mg/kg	SW846 6010B
Selenium	0.40 B	0.60	mg/kg	SW846 6010B
Lead	13.1	0.36	mg/kg	SW846 6010B
Barium	77.8	23.9	mg/kg	SW846 6010B
Chromium	12.1	1.2	mg/kg	SW846 6010B
Acetone	4.0 J, B	24	ug/kg	SW846 8260B
Percent Solids	85.5	10.0	%	MCAWW 160.3 MOD

(Continued on next page)

Handwritten:
3/6/01

EXECUTIVE SUMMARY - Detection Highlights

A0L220165

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
GEO4 10-12 12/21/00 15:00 015				
Mercury	0.018 B	0.11	mg/kg	SW846 7471A
Arsenic	6.9	1.1	mg/kg	SW846 6010B
Lead	4.6	0.32	mg/kg	SW846 6010B
Barium	11.4 B	21.4	mg/kg	SW846 6010B
Cadmium	0.063 B	0.53	mg/kg	SW846 6010B
Chromium	3.1	1.1	mg/kg	SW846 6010B
Acetone	4.8 J,B	21	ug/kg	SW846 8260B
Percent Solids	93.6	10.0	%	MCAWW 160.3 MOD

ANALYTICAL METHODS SUMMARY

A0L220165

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A
Semivolatile Organic Compounds by GC/MS	SW846 8270C
Total Residue as Percent Solids	MCAWW 160.3 MOD
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Volatile Organics by GC/MS	SW846 8260B

References:

- MCAWW "Methods for Chemical Analysis of Water and Wastes",
EPA-600/4-79-020, March 1983 and subsequent revisions.
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical
Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A0L220165

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
DRXL0	001	X01A	12/20/00	10:55
DRXL1	002	X02C	12/20/00	12:30
DRXL4	003	X04B-1	12/20/00	14:40
DRXL6	004	X04B-2	12/20/00	14:43
DRXL7	005	X06A	12/20/00	16:10
DRXL8	006	X07C	12/20/00	18:10
DRXL9	007	X09B	12/21/00	08:45
DRXMA	008	X11A	12/21/00	11:30
DRXMC	009	X12C-1	12/21/00	13:15
DRXMD	010	X12C-2	12/21/00	13:15
DRXME	011	X14B	12/21/00	15:00
DRXMF	012	GEO1 9-13	12/21/00	10:50
DRXMH	013	GEO2 1-4	12/21/00	12:00
DRXMJ	014	GEO3 2-4	12/21/00	14:20
DRXMK	015	GEO4 10-12	12/21/00	15:00

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: X01A

TOTAL Metals

Lot-Sample #: A01220165-001

Matrix.....: SO

Date Sampled....: 12/20/00 10:55 Date Received...: 12/21/00

% Moisture.....: 22

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #....: 0363093						
Lead	1280	0.39	mg/kg	SW846 6010B	12/28/00	DEKL01A0
		Dilution Factor: 1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: X02C

TOTAL Metals

Lot-Sample #....: A0L220165-002

Matrix.....: SO

Date Sampled....: 12/20/00 12:30 Date Received...: 12/21/00

% Moisture.....: 15

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #....: 0363093						
Lead	66.1	0.35	mg/kg	SW846 6010B	12/28/00	DRXL11AC
		Dilution Factor: 1				

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: X04B-1

TOTAL Metals

Lot-Sample #: A0L220165-003

Matrix.....: SO

Date Sampled...: 12/20/00 14:40 Date Received...: 12/21/00

% Moisture.....: 15

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>WORK</u> <u>ORDER #</u>
Prep Batch #: 0363093						
Lead	26.6	0.35	mg/kg	SW846 6010B	12/28/00	DEXL41AC
		Dilution Factor: 1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: X04B-2

TOTAL Metals

Lot-Sample #....: A0L220165-004

Matrix.....: SO

Date Sampled....: 12/20/00 14:43 Date Received...: 12/21/00

% Moisture.....: 15

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #....: 0363093						
Lead	28.2	0.35	mg/kg	SW846 6010B	12/28/00	DRXL61AC
		Dilution Factor: 1				

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: X06A

TOTAL Metals

Lot-Sample #....: A0L220165-005

Matrix.....: SO

Date Sampled....: 12/20/00 16:10 Date Received...: 12/21/00

% Moisture.....: 13

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #....: 0363093						
Lead	1770	3.5	mg/kg	SW846 6010B	12/28-12/29/00	DRXL71AC
		Dilution Factor: 10				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: X07C

TOTAL Metals

Lot-Sample #....: AOL220165-006

Matrix.....: SO

Date Sampled....: 12/20/00 18:10 Date Received...: 12/21/00

% Moisture.....: 16

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #....: 0363093						
Lead	319	0.36	mg/kg	SW846 6010B	12/28/00	DRXL81AC
		Dilution Factor: 1				

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: X09B

TOTAL Metals

Lot-Sample #: A0L220165-007

Matrix.....: SO

Date Sampled...: 12/21/00 08:45 Date Received...: 12/21/00

% Moisture.....: 11

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>WORK</u> <u>ORDER #</u>
Prep Batch #: 0363093						
Lead	165	0.34	mg/kg	SW846 6010B	12/28/00	DEXL91AC
		Dilution Factor: 1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: X11A

TOTAL Metals

Lot-Sample #....: A0L220165-008

Matrix.....: SO

Date Sampled...: 12/21/00 11:30 Date Received...: 12/21/00

% Moisture.....: 10

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #....: 0363093						
Lead	829	0.33	mg/kg	SW846 6010B	12/28/00	DRXMA1AC
		Dilution Factor: 1				

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: X12C-1

TOTAL Metals

Lot-Sample #: A0L220165-009

Matrix.....: SO

Date Sampled....: 12/21/00 13:15 Date Received...: 12/21/00

% Moisture.....: 14

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #....: 0363093						
Lead	26.5	0.35	mg/kg	SW846 6010B	12/28/00	DEKMC1A
		Dilution Factor: 1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: X12C-2

TOTAL Metals

Lot-Sample #....: A0L220165-010

Matrix.....: SO

Date Sampled....: 12/21/00 13:15 Date Received...: 12/21/00

† Moisture.....: 16

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #....: 0363093						
Lead	19.4	0.36	mg/kg	SW846 6010B	12/28/00	DRXMD1AC

Dilution Factor: 1

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: X14B

TOTAL Metals

Lot-Sample #....: A0L220165-011

Matrix.....: SO

Date Sampled....: 12/21/00 15:00 Date Received...: 12/21/00

% Moisture.....: 17

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>WORK</u> <u>ORDER #</u>
Prep Batch #....: 0363093						
Lead	182	0.36	mg/kg	SW846 6010B	12/28/00	DRXME1AC

Dilution Factor: 1

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO1 9-13

GC/MS Volatiles

Lot-Sample #....: A0L220165-012 Work Order #....: DRXMF1AD Matrix.....: SO
 Date Sampled....: 12/21/00 10:50 Date Received...: 12/21/00
 Prep Date.....: 12/26/00 Analysis Date...: 12/26/00
 Prep Batch #....: 0364241
 Dilution Factor: 1
 % Moisture.....: 8.2 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	11	ug/kg
Bromomethane	ND	11	ug/kg
Vinyl chloride	ND	11	ug/kg
Chloroethane	ND	11	ug/kg
Methylene chloride	ND	5.4	ug/kg
Acetone	5.2 J,B	22	ug/kg
Carbon disulfide	ND	5.4	ug/kg
1,1-Dichloroethene	ND	5.4	ug/kg
1,1-Dichloroethane	ND	5.4	ug/kg
1,2-Dichloroethene	ND	5.4	ug/kg
(total)			
Chloroform	ND	5.4	ug/kg
1,2-Dichloroethane	ND	5.4	ug/kg
2-Butanone	ND	22	ug/kg
1,1,1-Trichloroethane	ND	5.4	ug/kg
Carbon tetrachloride	ND	5.4	ug/kg
Bromodichloromethane	ND	5.4	ug/kg
1,2-Dichloropropane	ND	5.4	ug/kg
cis-1,3-Dichloropropene	ND	5.4	ug/kg
Trichloroethene	ND	5.4	ug/kg
Dibromochloromethane	ND	5.4	ug/kg
1,1,2-Trichloroethane	ND	5.4	ug/kg
Benzene	ND	5.4	ug/kg
trans-1,3-Dichloropropene	ND	5.4	ug/kg
Bromoform	ND	5.4	ug/kg
4-Methyl-2-pentanone	ND	22	ug/kg
2-Hexanone	ND	22	ug/kg
Tetrachloroethene	ND	5.4	ug/kg
1,1,2,2-Tetrachloroethane	ND	5.4	ug/kg
Toluene	ND	5.4	ug/kg
Chlorobenzene	ND	5.4	ug/kg
Ethylbenzene	ND	5.4	ug/kg
Styrene	ND	5.4	ug/kg
Xylenes (total)	ND	5.4	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	121	(59 - 138)
1,2-Dichloroethane-d4	120	(61 - 130)
Toluene-d8	115	(60 - 143)
4-Bromofluorobenzene	106	(47 - 158)

(Continued on next page)

WESTON, ROY F OF MICHIGAN

Client Sample ID: G801 9-13

GC/MS Volatiles

Lot-Sample #: A0L220165-012 Work Order #: DRXMF1AD Matrix.....: SO

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO1 9-13

GC/MS Semivolatiles

Lot-Sample #....: A0L220165-012 Work Order #....: DRXMF1AE Matrix.....: SO
 Date Sampled....: 12/21/00 10:50 Date Received...: 12/21/00
 Prep Date.....: 12/26/00 Analysis Date...: 01/03/01
 Prep Batch #....: 0361155
 Dilution Factor: 1
 % Moisture.....: 8.2 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Phenol	ND	360	ug/kg
bis(2-Chloroethyl) - ether	ND	360	ug/kg
2-Chlorophenol	ND	360	ug/kg
1,3-Dichlorobenzene	ND	360	ug/kg
1,4-Dichlorobenzene	ND	360	ug/kg
1,2-Dichlorobenzene	ND	360	ug/kg
2-Methylphenol	ND	360	ug/kg
2,2'-oxybis(1-Chloro- propane)	ND	360	ug/kg
4-Methylphenol	ND	360	ug/kg
N-Nitrosodi-n-propyl- amine	ND	360	ug/kg
Hexachloroethane	ND	360	ug/kg
Nitrobenzene	ND	360	ug/kg
Isophorone	ND	360	ug/kg
2-Nitrophenol	ND	360	ug/kg
2,4-Dimethylphenol	ND	360	ug/kg
bis(2-Chloroethoxy) methane	ND	360	ug/kg
2,4-Dichlorophenol	ND	360	ug/kg
1,2,4-Trichloro- benzene	ND	360	ug/kg
Naphthalene	ND	360	ug/kg
4-Chloroaniline	ND	360	ug/kg
Hexachlorobutadiene	ND	360	ug/kg
4-Chloro-3-methylphenol	ND	360	ug/kg
2-Methylnaphthalene	ND	360	ug/kg
Hexachlorocyclopenta- diene	ND	1700	ug/kg
2,4,6-Trichloro- phenol	ND	360	ug/kg
2,4,5-Trichloro- phenol	ND	360	ug/kg
2-Chloronaphthalene	ND	360	ug/kg
2-Nitroaniline	ND	1700	ug/kg
Dimethyl phthalate	ND	360	ug/kg
Acenaphthylene	ND	360	ug/kg

(Continued on next page)

WESTON, ROY F OF MICHIGAN

Client Sample ID: GE01 9-13

GC/MS Semivolatiles

Lot-Sample #....: A0L220165-012 Work Order #....: DRXMF1AE Matrix.....: SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	360	ug/kg
3-Nitroaniline	ND	1700	ug/kg
Acenaphthene	ND	360	ug/kg
2,4-Dinitrophenol	ND	1700	ug/kg
4-Nitrophenol	ND	1700	ug/kg
Dibenzofuran	ND	360	ug/kg
2,4-Dinitrotoluene	ND	360	ug/kg
Diethyl phthalate	ND	360	ug/kg
4-Chlorophenyl phenyl ether	ND	360	ug/kg
Fluorene	ND	360	ug/kg
4-Nitroaniline	ND	1700	ug/kg
4,6-Dinitro- 2-methylphenol	ND	1700	ug/kg
N-Nitrosodiphenylamine	ND	360	ug/kg
4-Bromophenyl phenyl ether	ND	360	ug/kg
Hexachlorobenzene	ND	360	ug/kg
Pentachlorophenol	ND	360	ug/kg
Phenanthrene	ND	360	ug/kg
Anthracene	ND	360	ug/kg
Carbazole	ND	360	ug/kg
Di-n-butyl phthalate	ND	360	ug/kg
Fluoranthene	ND	360	ug/kg
Pyrene	ND	360	ug/kg
Butyl benzyl phthalate	ND	360	ug/kg
3,3'-Dichlorobenzidine	ND	1700	ug/kg
Benzo (a) anthracene	ND	360	ug/kg
Chrysene	ND	360	ug/kg
bis (2-Ethylhexyl) phthalate	ND	360	ug/kg
Di-n-octyl phthalate	ND	360	ug/kg
Benzo (b) fluoranthene	ND	360	ug/kg
Benzo (k) fluoranthene	ND	360	ug/kg
Benzo (a) pyrene	ND	360	ug/kg
Indeno (1,2,3-cd) pyrene	ND	360	ug/kg
Dibenz (a,h) anthracene	ND	360	ug/kg
Benzo (ghi) perylene	ND	360	ug/kg

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WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO1 9-13

GC/MS Semivolatiles

Lot-Sample #....: A0L220165-012 Work Order #....: DRXMF1AE Matrix.....: SO

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Nitrobenzene-d5	71	(42 - 110)
2-Fluorobiphenyl	67	(43 - 110)
Terphenyl-d14	65	(37 - 137)
Phenol-d5	79	(25 - 115)
2-Fluorophenol	71	(11 - 116)
2,4,6-Tribromophenol	68	(35 - 116)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: G801 9-13

TOTAL Metals

Lot-Sample #....: A0L220165-012

Matrix.....: SO

Date Sampled....: 12/21/00 10:50 Date Received...: 12/21/00

% Moisture.....: 8.2

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #....: 0363093						
Antimony	0.82 B <i>UJ</i>	1.1 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMF1AF
Arsenic	0.36 B	1.1 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMF1AG
Barium	33.1	21.8 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMF1AK
Cadmium	ND	0.54 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMF1AL
Chromium	0.70 B	1.1 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMF1AM
Selenium	ND	0.54 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMF1AJ
Silver	ND	1.1 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMF1AN
Lead	20.7	0.33 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMF1AH
Mercury	ND	0.11 Dilution Factor: 1	mg/kg	SW846 7471A	12/28-12/29/00	DRXMF1AP

NOTE(S):

B Estimated result. Result is less than RL.

Results and reporting limits have been adjusted for dry weight.

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WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO2 1-4

GC/MS Volatiles

Lot-Sample #....: A0L220165-013 Work Order #....: DRXMH1AC Matrix.....: SO
 Date Sampled....: 12/21/00 12:00 Date Received...: 12/21/00
 Prep Date.....: 12/28/00 Analysis Date...: 12/28/00
 Prep Batch #....: 0364257
 Dilution Factor: 1
 % Moisture.....: 14 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	12	ug/kg
Bromomethane	ND	12	ug/kg
Vinyl chloride	ND	12	ug/kg
Chloroethane	ND	12	ug/kg
Methylene chloride	3.2 J,B	5.8	ug/kg
Acetone	ND	23	ug/kg
Carbon disulfide	ND	5.8	ug/kg
1,1-Dichloroethene	ND	5.8	ug/kg
1,1-Dichloroethane	ND	5.8	ug/kg
1,2-Dichloroethene (total)	ND	5.8	ug/kg
Chloroform	ND	5.8	ug/kg
1,2-Dichloroethane	ND	5.8	ug/kg
2-Butanone	ND	23	ug/kg
1,1,1-Trichloroethane	ND	5.8	ug/kg
Carbon tetrachloride	ND	5.8	ug/kg
Bromodichloromethane	ND	5.8	ug/kg
1,2-Dichloropropane	ND	5.8	ug/kg
cis-1,3-Dichloropropene	ND	5.8	ug/kg
Trichloroethene	ND	5.8	ug/kg
Dibromochloromethane	ND	5.8	ug/kg
1,1,2-Trichloroethane	ND	5.8	ug/kg
Benzene	ND	5.8	ug/kg
trans-1,3-Dichloropropene	ND	5.8	ug/kg
Bromoform	ND	5.8	ug/kg
4-Methyl-2-pentanone	ND	23	ug/kg
2-Hexanone	ND	23	ug/kg
Tetrachloroethene	ND	5.8	ug/kg
1,1,2,2-Tetrachloroethane	ND	5.8	ug/kg
Toluene	ND	5.8	ug/kg
Chlorobenzene	ND	5.8	ug/kg
Ethylbenzene	ND	5.8	ug/kg
Styrene	ND	5.8	ug/kg
Xylenes (total)	ND	5.8	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	101	(59 - 138)
1,2-Dichloroethane-d4	93	(61 - 130)
Toluene-d8	104	(60 - 143)
4-Bromofluorobenzene	100	(47 - 158)

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WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO2 1-4

GC/MS Volatiles

Lot-Sample #....: A0L220165-013 Work Order #....: DRXMH1AC Matrix.....: SO

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than EL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO2 1-4

GC/MS Semivolatiles

Lot-Sample #....: A0L220165-013 Work Order #....: DRDMH1AD Matrix.....: SO
 Date Sampled....: 12/21/00 12:00 Date Received...: 12/21/00
 Prep Date.....: 12/26/00 Analysis Date...: 01/03/01
 Prep Batch #....: 0361155
 Dilution Factor: 1
 % Moisture.....: 14 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Phenol	ND	380	ug/kg
bis(2-Chloroethyl)- ether	ND	380	ug/kg
2-Chlorophenol	ND	380	ug/kg
1,3-Dichlorobenzene	ND	380	ug/kg
1,4-Dichlorobenzene	ND	380	ug/kg
1,2-Dichlorobenzene	ND	380	ug/kg
2-Methylphenol	ND	380	ug/kg
2,2'-oxybis(1-Chloro- propane)	ND	380	ug/kg
4-Methylphenol	ND	380	ug/kg
N-Nitrosodi-n-propyl- amine	ND	380	ug/kg
Hexachloroethane	ND	380	ug/kg
Nitrobenzene	ND	380	ug/kg
Isophorone	ND	380	ug/kg
2-Nitrophenol	ND	380	ug/kg
2,4-Dimethylphenol	ND	380	ug/kg
bis(2-Chloroethoxy) methane	ND	380	ug/kg
2,4-Dichlorophenol	ND	380	ug/kg
1,2,4-Trichloro- benzene	ND	380	ug/kg
Naphthalene	ND	380	ug/kg
4-Chloroaniline	ND	380	ug/kg
Hexachlorobutadiene	ND	380	ug/kg
4-Chloro-3-methylphenol	ND	380	ug/kg
2-Methylnaphthalene	ND	380	ug/kg
Hexachlorocyclopenta- diene	ND	1900	ug/kg
2,4,6-Trichloro- phenol	ND	380	ug/kg
2,4,5-Trichloro- phenol	ND	380	ug/kg
2-Chloronaphthalene	ND	380	ug/kg
2-Nitroaniline	ND	1900	ug/kg
Dimethyl phthalate	ND	380	ug/kg
Acenaphthylene	ND	380	ug/kg

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WESTON, ROY P OF MICHIGAN

Client Sample ID: G802 1-4

GC/MS Semivolatiles

Lot-Sample #....: A0L220165-013 Work Order #....: DRXMH1AD Matrix.....: SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	380	ug/kg
3-Nitroaniline	ND	1900	ug/kg
Acenaphthene	ND	380	ug/kg
2,4-Dinitrophenol	ND	1900	ug/kg
4-Nitrophenol	ND	1900	ug/kg
Dibenzofuran	ND	380	ug/kg
2,4-Dinitrotoluene	ND	380	ug/kg
Diethyl phthalate	ND	380	ug/kg
4-Chlorophenyl phenyl ether	ND	380	ug/kg
Fluorene	ND	380	ug/kg
4-Nitroaniline	ND	1900	ug/kg
4,6-Dinitro- 2-methylphenol	ND	1900	ug/kg
N-Nitrosodiphenylamine	ND	380	ug/kg
4-Bromophenyl phenyl ether	ND	380	ug/kg
Hexachlorobenzene	ND	380	ug/kg
Pentachlorophenol	ND	380	ug/kg
Phenanthrene	ND	380	ug/kg
Anthracene	ND	380	ug/kg
Carbazole	ND	380	ug/kg
Di-n-butyl phthalate	ND	380	ug/kg
Fluoranthene	ND	380	ug/kg
Pyrene	ND	380	ug/kg
Butyl benzyl phthalate	ND	380	ug/kg
3,3'-Dichlorobenzidine	ND	1900	ug/kg
Benzo (a) anthracene	ND	380	ug/kg
Chrysene	ND	380	ug/kg
bis (2-Ethylhexyl) phthalate	ND	380	ug/kg
Di-n-octyl phthalate	ND	380	ug/kg
Benzo (b) fluoranthene	ND	380	ug/kg
Benzo (k) fluoranthene	ND	380	ug/kg
Benzo (a) pyrene	ND	380	ug/kg
Indeno (1,2,3-cd) pyrene	ND	380	ug/kg
Dibenz (a,h) anthracene	ND	380	ug/kg
Benzo (ghi) perylene	ND	380	ug/kg

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WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO2 1-4

GC/MS Semivolatiles

Lot-Sample #....: A0L220165-013 Work Order #....: DRXMHLAD Matrix.....: SO

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Nitrobenzene-d5	77	(42 - 110)
2-Fluorobiphenyl	74	(43 - 110)
Terphenyl-d14	70	(37 - 137)
Phenol-d5	86	(25 - 115)
2-Fluorophenol	75	(11 - 116)
2,4,6-Tribromophenol	67	(35 - 116)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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3/6/01

WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO2 1-4

TOTAL Metals

Lot-Sample #....: A0L220165-013

Matrix.....: SO

Date Sampled....: 12/21/00 12:00 Date Received...: 12/21/00

% Moisture.....: 14

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #....: 0363093						
Antimony <i>JS</i>	0.78 B	1.2 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DEXMELAF
Arsenic	11.0	1.2 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DEXMELAF
Barium	98.0	23.2 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DEXMELAJ
Cadmium	0.93	0.58 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DEXMELAK
Chromium	12.3	1.2 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DEXMELAL
Selenium	0.48 B	0.58 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DEXMELAN
Silver	ND	1.2 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DEXMELAM
Lead	24.2	0.35 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DEXMELAG
Mercury	0.032 B	0.12 Dilution Factor: 1	mg/kg	SW846 7471A	12/28-12/29/00	DEXMELAN

NOTE(S):

B Estimated result. Result is less than RL.

Results and reporting limits have been adjusted for dry weight.

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WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO3 2-4

GC/MS Volatiles

Lot-Sample #....: A0L220165-014 Work Order #....: DRXMJLAC Matrix.....: SO
 Date Sampled....: 12/21/00 14:20 Date Received...: 12/21/00
 Prep Date.....: 12/26/00 Analysis Date...: 12/26/00
 Prep Batch #....: 0364241
 Dilution Factor: 1
 % Moisture.....: 16 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	12	ug/kg
Bromomethane	ND	12	ug/kg
Vinyl chloride	ND	12	ug/kg
Chloroethane	ND	12	ug/kg
Methylene chloride	ND	6.0	ug/kg
Acetone	4.0 J,B	24	ug/kg
Carbon disulfide	ND	6.0	ug/kg
1,1-Dichloroethene	ND	6.0	ug/kg
1,1-Dichloroethane	ND	6.0	ug/kg
1,2-Dichloroethene (total)	ND	6.0	ug/kg
Chloroform	ND	6.0	ug/kg
1,2-Dichloroethane	ND	6.0	ug/kg
2-Butanone	ND	24	ug/kg
1,1,1-Trichloroethane	ND	6.0	ug/kg
Carbon tetrachloride	ND	6.0	ug/kg
Bromodichloromethane	ND	6.0	ug/kg
1,2-Dichloropropane	ND	6.0	ug/kg
cis-1,3-Dichloropropene	ND	6.0	ug/kg
Trichloroethene	ND	6.0	ug/kg
Dibromochloromethane	ND	6.0	ug/kg
1,1,2-Trichloroethane	ND	6.0	ug/kg
Benzene	ND	6.0	ug/kg
trans-1,3-Dichloropropene	ND	6.0	ug/kg
Bromoform	ND	6.0	ug/kg
4-Methyl-2-pentanone	ND	24	ug/kg
2-Hexanone	ND	24	ug/kg
Tetrachloroethene	ND	6.0	ug/kg
1,1,2,2-Tetrachloroethane	ND	6.0	ug/kg
Toluene	ND	6.0	ug/kg
Chlorobenzene	ND	6.0	ug/kg
Ethylbenzene	ND	6.0	ug/kg
Styrene	ND	6.0	ug/kg
Xylenes (total)	ND	6.0	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	122	(59 - 138)
1,2-Dichloroethane-d4	123	(61 - 130)
Toluene-d8	115	(60 - 143)
4-Bromofluorobenzene	106	(47 - 158)

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WESTON, ROY F OF MICHIGAN

Client Sample ID: G803 2-4

GC/MS Volatiles

Lot-Sample #: AOL220165-014 Work Order #: DROMJAC Matrix.....: SO

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than EL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO3 2-4

GC/MS Semivolatiles

Lot-Sample #....: A0L220165-014 Work Order #....: DRXMJLAD Matrix.....: SO
 Date Sampled....: 12/21/00 14:20 Date Received...: 12/21/00
 Prep Date.....: 12/26/00 Analysis Date...: 01/03/01
 Prep Batch #....: 0361155
 Dilution Factor: 1
 % Moisture.....: 16 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Phenol	ND	400	ug/kg
bis(2-Chloroethyl)- ether	ND	400	ug/kg
2-Chlorophenol	ND	400	ug/kg
1,3-Dichlorobenzene	ND	400	ug/kg
1,4-Dichlorobenzene	ND	400	ug/kg
1,2-Dichlorobenzene	ND	400	ug/kg
2-Methylphenol	ND	400	ug/kg
2,2'-oxybis(1-Chloro- propane)	ND	400	ug/kg
4-Methylphenol	ND	400	ug/kg
N-Nitrosodi-n-propyl- amine	ND	400	ug/kg
Hexachloroethane	ND	400	ug/kg
Nitrobenzene	ND	400	ug/kg
Isophorone	ND	400	ug/kg
2-Nitrophenol	ND	400	ug/kg
2,4-Dimethylphenol	ND	400	ug/kg
bis(2-Chloroethoxy) methane	ND	400	ug/kg
2,4-Dichlorophenol	ND	400	ug/kg
1,2,4-Trichloro- benzene	ND	400	ug/kg
Naphthalene	ND	400	ug/kg
4-Chloroaniline	ND	400	ug/kg
Hexachlorobutadiene	ND	400	ug/kg
4-Chloro-3-methylphenol	ND	400	ug/kg
2-Methylnaphthalene	ND	400	ug/kg
Hexachlorocyclopenta- diene	ND	1900	ug/kg
2,4,6-Trichloro- phenol	ND	400	ug/kg
2,4,5-Trichloro- phenol	ND	400	ug/kg
2-Chloronaphthalene	ND	400	ug/kg
2-Nitroaniline	ND	1900	ug/kg
Dimethyl phthalate	ND	400	ug/kg
Acenaphthylene	ND	400	ug/kg

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WESTON, ROY F OF MICHIGAN

Client Sample ID: GE03 2-4

GC/MS Semivolatiles

Lot-Sample #....: A0L220165-014

Work Order #....: DROMJLAD

Matrix.....: SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	400	ug/kg
3-Nitroaniline	ND	1900	ug/kg
Acenaphthene	ND	400	ug/kg
2,4-Dinitrophenol	ND	1900	ug/kg
4-Nitrophenol	ND	1900	ug/kg
Dibenzofuran	ND	400	ug/kg
2,4-Dinitrotoluene	ND	400	ug/kg
Diethyl phthalate	ND	400	ug/kg
4-Chlorophenyl phenyl ether	ND	400	ug/kg
Fluorene	ND	400	ug/kg
4-Nitroaniline	ND	1900	ug/kg
4,6-Dinitro- 2-methylphenol	ND	1900	ug/kg
N-Nitrosodiphenylamine	ND	400	ug/kg
4-Bromophenyl phenyl ether	ND	400	ug/kg
Hexachlorobenzene	ND	400	ug/kg
Pentachlorophenol	ND	400	ug/kg
Phenanthrene	ND	400	ug/kg
Anthracene	ND	400	ug/kg
Carbazole	ND	400	ug/kg
Di-n-butyl phthalate	ND	400	ug/kg
Fluoranthene	ND	400	ug/kg
Pyrene	ND	400	ug/kg
Butyl benzyl phthalate	ND	400	ug/kg
3,3'-Dichlorobenzidine	ND	1900	ug/kg
Benzo (a) anthracene	ND	400	ug/kg
Chrysene	ND	400	ug/kg
bis (2-Ethylhexyl) phthalate	ND	400	ug/kg
Di-n-octyl phthalate	ND	400	ug/kg
Benzo (b) fluoranthene	ND	400	ug/kg
Benzo (k) fluoranthene	ND	400	ug/kg
Benzo (a) pyrene	ND	400	ug/kg
Indeno (1,2,3-cd) pyrene	ND	400	ug/kg
Dibenz (a,h) anthracene	ND	400	ug/kg
Benzo (ghi) perylene	ND	400	ug/kg

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WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO3 2-4

GC/MS Semivolatiles

Lot-Sample #....: A0L220165-014 Work Order #....: DRXMJ1AD Matrix.....: SO

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Nitrobenzene-d5	77	(42 - 110)
2-Fluorobiphenyl	69	(43 - 110)
Terphenyl-d14	76	(37 - 137)
Phenol-d5	83	(25 - 115)
2-Fluorophenol	70	(11 - 116)
2,4,6-Tribromophenol	52	(35 - 116)

NOTE (S):

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: GBO3 2-4

TOTAL Metals

Lot-Sample #: A0L220165-014

Matrix.....: SO

Date Sampled....: 12/21/00 14:20 Date Received...: 12/21/00

% Moisture.....: 16

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #: 0363093						
Antimony	0.65 B <i>us</i>	1.2	mg/kg	SW846 6010B	12/28/00	DEKXJLAF
	Dilution Factor: 1					
Arsenic	9.0	1.2	mg/kg	SW846 6010B	12/28/00	DEKXJLAF
	Dilution Factor: 1					
Barium	77.8	23.9	mg/kg	SW846 6010B	12/28/00	DEKXJLAF
	Dilution Factor: 1					
Cadmium	ND	0.60	mg/kg	SW846 6010B	12/28/00	DEKXJLAF
	Dilution Factor: 1					
Chromium	12.1	1.2	mg/kg	SW846 6010B	12/28/00	DEKXJLAF
	Dilution Factor: 1					
Selenium	0.40 B	0.60	mg/kg	SW846 6010B	12/28/00	DEKXJLAF
	Dilution Factor: 1					
Silver	ND	1.2	mg/kg	SW846 6010B	12/28/00	DEKXJLAF
	Dilution Factor: 1					
Lead	13.1	0.36	mg/kg	SW846 6010B	12/28/00	DEKXJLAF
	Dilution Factor: 1					
Mercury	0.045 B	0.12	mg/kg	SW846 7471A	12/28-12/29/00	DEKXJLAF
	Dilution Factor: 1					

NOTE(S):

B Estimated result. Result is less than RL.

Results and reporting limits have been adjusted for dry weight.

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WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO4 10-12

GC/MS Volatiles

Lot-Sample #....: AOL220165-015 Work Order #....: DRXMK1AC Matrix.....: SO
 Date Sampled....: 12/21/00 15:00 Date Received...: 12/21/00
 Prep Date.....: 12/26/00 Analysis Date...: 12/26/00
 Prep Batch #....: 0364241
 Dilution Factor: 1
 % Moisture.....: 6.4 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	11	ug/kg
Bromomethane	ND	11	ug/kg
Vinyl chloride	ND	11	ug/kg
Chloroethane	ND	11	ug/kg
Methylene chloride	ND	5.3	ug/kg
Acetone	4.8 J,B	21	ug/kg
Carbon disulfide	ND	5.3	ug/kg
1,1-Dichloroethene	ND	5.3	ug/kg
1,1-Dichloroethane	ND	5.3	ug/kg
1,2-Dichloroethene (total)	ND	5.3	ug/kg
Chloroform	ND	5.3	ug/kg
1,2-Dichloroethane	ND	5.3	ug/kg
2-Butanone	ND	21	ug/kg
1,1,1-Trichloroethane	ND	5.3	ug/kg
Carbon tetrachloride	ND	5.3	ug/kg
Bromodichloromethane	ND	5.3	ug/kg
1,2-Dichloropropane	ND	5.3	ug/kg
cis-1,3-Dichloropropene	ND	5.3	ug/kg
Trichloroethene	ND	5.3	ug/kg
Dibromochloromethane	ND	5.3	ug/kg
1,1,2-Trichloroethane	ND	5.3	ug/kg
Benzene	ND	5.3	ug/kg
trans-1,3-Dichloropropene	ND	5.3	ug/kg
Bromoform	ND	5.3	ug/kg
4-Methyl-2-pentanone	ND	21	ug/kg
2-Hexanone	ND	21	ug/kg
Tetrachloroethene	ND	5.3	ug/kg
1,1,2,2-Tetrachloroethane	ND	5.3	ug/kg
Toluene	ND	5.3	ug/kg
Chlorobenzene	ND	5.3	ug/kg
Ethylbenzene	ND	5.3	ug/kg
Styrene	ND	5.3	ug/kg
Xylenes (total)	ND	5.3	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	125	(59 - 138)
1,2-Dichloroethane-d4	126	(61 - 130)
Toluene-d8	113	(60 - 143)
4-Bromofluorobenzene	106	(47 - 158)

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WESTON, ROY F OF MICHIGAN

Client Sample ID: G804 10-12

GC/MS Volatiles

Lot-Sample #: A0L220165-015 Work Order #: DRDECIAC Matrix.....: SO

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO4 10-12

GC/MS Semivolatiles

Lot-Sample #: A0L220165-015 Work Order #: DRXMK1AD Matrix.....: SO
 Date Sampled...: 12/21/00 15:00 Date Received...: 12/21/00
 Prep Date.....: 12/26/00 Analysis Date...: 01/03/01
 Prep Batch #: 0361155
 Dilution Factor: 1
 % Moisture.....: 6.4 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Phenol	ND	350	ug/kg
bis (2-Chloroethyl) - ether	ND	350	ug/kg
2-Chlorophenol	ND	350	ug/kg
1,3-Dichlorobenzene	ND	350	ug/kg
1,4-Dichlorobenzene	ND	350	ug/kg
1,2-Dichlorobenzene	ND	350	ug/kg
2-Methylphenol	ND	350	ug/kg
2,2'-oxybis (1-Chloro- propane)	ND	350	ug/kg
4-Methylphenol	ND	350	ug/kg
N-Nitrosodi-n-propyl- amine	ND	350	ug/kg
Hexachloroethane	ND	350	ug/kg
Nitrobenzene	ND	350	ug/kg
Isophorone	ND	350	ug/kg
2-Nitrophenol	ND	350	ug/kg
2,4-Dimethylphenol	ND	350	ug/kg
bis (2-Chloroethoxy) methane	ND	350	ug/kg
2,4-Dichlorophenol	ND	350	ug/kg
1,2,4-Trichloro- benzene	ND	350	ug/kg
Naphthalene	ND	350	ug/kg
4-Chloroaniline	ND	350	ug/kg
Hexachlorobutadiene	ND	350	ug/kg
4-Chloro-3-methylphenol	ND	350	ug/kg
2-Methylnaphthalene	ND	350	ug/kg
Hexachlorocyclopenta- diene	ND	1700	ug/kg
2,4,6-Trichloro- phenol	ND	350	ug/kg
2,4,5-Trichloro- phenol	ND	350	ug/kg
2-Chloronaphthalene	ND	350	ug/kg
2-Nitroaniline	ND	1700	ug/kg
Dimethyl phthalate	ND	350	ug/kg
Acenaphthylene	ND	350	ug/kg

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WESTON, ROY F OF MICHIGAN

Client Sample ID: GND4 10-12

GC/MS Semivolatiles

Lot-Sample #....: A0L220165-015 Work Order #....: DRXMKLAD Matrix.....: SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	350	ug/kg
3-Nitroaniline	ND	1700	ug/kg
Acenaphthene	ND	350	ug/kg
2,4-Dinitrophenol	ND	1700	ug/kg
4-Nitrophenol	ND	1700	ug/kg
Dibenzofuran	ND	350	ug/kg
2,4-Dinitrotoluene	ND	350	ug/kg
Diethyl phthalate	ND	350	ug/kg
4-Chlorophenyl phenyl ether	ND	350	ug/kg
Fluorene	ND	350	ug/kg
4-Nitroaniline	ND	1700	ug/kg
4,6-Dinitro- 2-methylphenol	ND	1700	ug/kg
N-Nitrosodiphenylamine	ND	350	ug/kg
4-Bromophenyl phenyl ether	ND	350	ug/kg
Hexachlorobenzene	ND	350	ug/kg
Pentachlorophenol	ND	350	ug/kg
Phenanthrene	ND	350	ug/kg
Anthracene	ND	350	ug/kg
Carbazole	ND	350	ug/kg
Di-n-butyl phthalate	ND	350	ug/kg
Fluoranthene	ND	350	ug/kg
Pyrene	ND	350	ug/kg
Butyl benzyl phthalate	ND	350	ug/kg
3,3'-Dichlorobenzidine	ND	1700	ug/kg
Benzo (a) anthracene	ND	350	ug/kg
Chrysene	ND	350	ug/kg
bis (2-Ethylhexyl) phthalate	ND	350	ug/kg
Di-n-octyl phthalate	ND	350	ug/kg
Benzo (b) fluoranthene	ND	350	ug/kg
Benzo (k) fluoranthene	ND	350	ug/kg
Benzo (a) pyrene	ND	350	ug/kg
Indeno (1,2,3-cd) pyrene	ND	350	ug/kg
Dibenz (a,h) anthracene	ND	350	ug/kg
Benzo (ghi) perylene	ND	350	ug/kg

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WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO4 10-12

GC/MS Semivolatiles

Lot-Sample #: A0L220165-015 Work Order #: DROMK1AD Matrix: SO

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Nitrobenzene-d5	79	(42 - 110)
2-Fluorobiphenyl	72	(43 - 110)
Terphenyl-d14	81	(37 - 137)
Phenol-d5	85	(25 - 115)
2-Fluorophenol	74	(11 - 116)
2,4,6-Tribromophenol	59	(35 - 116)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

WESTON, ROY F OF MICHIGAN

Client Sample ID: GEO4 10-12

TOTAL Metals

Lot-Sample #: A0L220165-015

Matrix.....: SO

Date Sampled...: 12/21/00 15:00 Date Received...: 12/21/00

% Moisture.....: 6.4

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #: 0363093						
Antimony	ND _{UL}	1.1 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMKLA
Arsenic	6.9	1.1 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMKLA
Barium	11.4 B	21.4 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMKLA
Cadmium	0.063 B	0.53 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMKLA
Chromium	3.1	1.1 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMKLA
Selenium	ND	0.53 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMKLA
Silver	ND	1.1 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMKLA
Lead	4.6	0.32 Dilution Factor: 1	mg/kg	SW846 6010B	12/28/00	DRXMKLA
Mercury	0.018 B	0.11 Dilution Factor: 1	mg/kg	SW846 7471A	12/28-12/29/00	DRXMKLA

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

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QUALITY CONTROL SECTION



QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the reparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)

Methylene chloride
Acetone
2-Butanone

Semivolatile (GC/MS)

Phthalate Esters

Metals

Copper
Iron
Zinc
Lead*

* for analyses run on TJA Trace ICP or GFAA only

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (Continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the reparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample are spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If the surrogate recoveries are outside criteria for environmental or MS/MSD samples, the batch is acceptable if the Method Blank, LCS, and LCSD surrogate recoveries are within acceptance criteria. The only exception is if the surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank and the associated sample(s) are ND, the batch is acceptable. If the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide/PCB, PAH, and Herbicide methods, the surrogate criteria is that one of two surrogate compounds meet acceptance criteria.

STL North Canton, Certifications and Approvals:

Alabama (#41170), California (#2157), Connecticut (#PH-0590), Florida (#E87225) – Florida CompQAPP (#890651G), Kentucky (#90021), Massachusetts (#M-OH048), Maryland (#272), Minnesota (#39-999-348), Missouri (#6090), New Jersey (#74001), New York (#10975), North Dakota (#R-156), Ohio (#6090), OhioVAP (#CLD024), Pennsylvania (#68-340), South Carolina (#92007001, #92007002, #92007003), Tennessee (#02903), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY, USDA Soil Permit, ACIL Seal of Excellence – Participating Lab Status Award (#82)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: A0L220165 Work Order #....: DR4NF1AC Matrix.....: SOLID
 LCS Lot-Sample#: A0L290000-241
 Prep Date.....: 12/26/00 Analysis Date...: 12/26/00
 Prep Batch #....: 0364241
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
1,1-Dichloroethene	114	(55 - 142)	SW846 8260B
Trichloroethene	109	(70 - 131)	SW846 8260B
Benzene	106	(75 - 129)	SW846 8260B
Toluene	104	(71 - 130)	SW846 8260B
Chlorobenzene	103	(75 - 127)	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Dibromofluoromethane	114	(59 - 138)
1,2-Dichloroethane-d4	119	(61 - 130)
Toluene-d8	113	(60 - 143)
4-Bromofluorobenzene	115	(47 - 158)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: A0L220165 Work Order #....: DR4Q11AC-LCS Matrix.....: SOLID
 LCS Lot-Sample#: A0L290000-257 DR4Q11AD-LCSD
 Prep Date.....: 12/28/00 Analysis Date...: 12/28/00
 Prep Batch #....: 0364257
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>
1,1-Dichloroethane	93	(55 - 142)			SW846 8260B
	91	(55 - 142)	1.7	(0-27)	SW846 8260B
Trichloroethane	93	(70 - 131)			SW846 8260B
	89	(70 - 131)	4.5	(0-23)	SW846 8260B
Benzene	92	(75 - 129)			SW846 8260B
	92	(75 - 129)	0.61	(0-20)	SW846 8260B
Toluene	92	(71 - 130)			SW846 8260B
	91	(71 - 130)	1.0	(0-24)	SW846 8260B
Chlorobenzene	92	(75 - 127)			SW846 8260B
	89	(75 - 127)	3.2	(0-22)	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Dibromofluoromethane	97	(59 - 138)
	106	(59 - 138)
1,2-Dichloroethane-d4	95	(61 - 130)
	101	(61 - 130)
Toluene-d8	96	(60 - 143)
	107	(60 - 143)
4-Bromofluorobenzene	91	(47 - 158)
	105	(47 - 158)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #....: A0L220165 Work Order #....: DR06T1AC Matrix.....: SOLID
 LCS Lot-Sample#: A0L260000-155
 Prep Date.....: 12/26/00 Analysis Date...: 01/03/01
 Prep Batch #....: 0361155
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
Phenol	90	(35 - 110)	SW846 8270C
2-Chlorophenol	91	(43 - 110)	SW846 8270C
1,4-Dichlorobenzene	94	(38 - 100)	SW846 8270C
N-Nitrosodi-n-propyl- amine	86	(38 - 110)	SW846 8270C
1,2,4-Trichloro- benzene	96	(45 - 110)	SW846 8270C
4-Chloro-3-methylphenol	88	(43 - 110)	SW846 8270C
Acenaphthene	82	(44 - 108)	SW846 8270C
4-Nitrophenol	63	(22 - 128)	SW846 8270C
2,4-Dinitrotoluene	88	(48 - 111)	SW846 8270C
Pentachlorophenol	52	(10 - 123)	SW846 8270C
Pyrene	76	(42 - 122)	SW846 8270C

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Nitrobenzene-d5	90	(42 - 110)
2-Fluorobiphenyl	87	(43 - 110)
Terphenyl-d14	83	(37 - 137)
Phenol-d5	97	(25 - 115)
2-Fluorophenol	80	(11 - 116)
2,4,6-Tribromophenol	83	(35 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #....: A0L220165

Matrix.....: SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: A0L280000-093 Prep Batch #....: 0363093					
Antimony	93	(80 - 120) Dilution Factor: 1	SW846 6010B	12/28/00	DR2H91AL
Arsenic	90	(80 - 120) Dilution Factor: 1	SW846 6010B	12/28/00	DR2H91AM
Barium	95	(80 - 120) Dilution Factor: 1	SW846 6010B	12/28/00	DR2H91AQ
Cadmium	93	(80 - 120) Dilution Factor: 1	SW846 6010B	12/28/00	DR2H91AR
Selenium	93	(80 - 120) Dilution Factor: 1	SW846 6010B	12/28/00	DR2H91AP
Chromium	93	(80 - 120) Dilution Factor: 1	SW846 6010B	12/28/00	DR2H91AT
Silver	101	(80 - 120) Dilution Factor: 1	SW846 6010B	12/28/00	DR2H91AU
Lead	93	(80 - 120) Dilution Factor: 1	SW846 6010B	12/28/00	DR2H91AN
Mercury	97	(52 - 127) Dilution Factor: 1	SW846 7471A	12/28-12/29/00	DR2H91AV

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: A0L220165
 MB Lot-Sample #: A0L290000-241

Work Order #....: DR4NF1AA

Matrix.....: SOLID

Analysis Date...: 12/26/00
 Dilution Factor: 1

Prep Date.....: 12/26/00

Prep Batch #....: 0364241

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	10	ug/kg	SW846 8260B
Bromomethane	ND	10	ug/kg	SW846 8260B
Vinyl chloride	ND	10	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
Methylene chloride	ND	5.0	ug/kg	SW846 8260B
Acetone	4.2 J	20	ug/kg	SW846 8260B
Carbon disulfide	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
(total)				
Chloroform	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
2-Butanone	ND	20	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	20	ug/kg	SW846 8260B
2-Hexanone	ND	20	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
Toluene	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
Styrene	ND	5.0	ug/kg	SW846 8260B
Xylenes (total)	ND	5.0	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	116	(59 - 138)
1,2-Dichloroethane-d4	114	(61 - 130)
Toluene-d8	111	(60 - 143)
4-Bromofluorobenzene	109	(47 - 158)

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: A0L220165

Work Order #....: DR4NF1AA

Matrix.....: SOLID

NOTE (3) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A0L220165
 MB Lot-Sample #: A0L290000-257

Work Order #...: DR4Q11AA

Matrix.....: SOLID

Analysis Date...: 12/28/00
 Dilution Factor: 1

Prep Date.....: 12/28/00
 Prep Batch #...: 0364257

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	10	ug/kg	SW846 8260B
Bromomethane	ND	10	ug/kg	SW846 8260B
Vinyl chloride	ND	10	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
Methylene chloride	1.6 J	5.0	ug/kg	SW846 8260B
Acetone	ND	20	ug/kg	SW846 8260B
Carbon disulfide	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethene (total)	ND	5.0	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
2-Butanone	ND	20	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	20	ug/kg	SW846 8260B
2-Hexanone	ND	20	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
Toluene	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
Styrene	ND	5.0	ug/kg	SW846 8260B
Xylenes (total)	ND	5.0	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	102	(59 - 138)
1,2-Dichloroethane-d4	93	(61 - 130)
Toluene-d8	103	(60 - 143)
4-Bromofluorobenzene	102	(47 - 158)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A0L220165

Work Order #...: DR4Q11AA

Matrix.....: SOLID

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

1 Estimated result. Result is less than EL.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #....: A0L220165
MS Lot-Sample #: A0L260000-155

Work Order #....: DR06T1AA

Matrix.....: SOLID

Analysis Date...: 01/03/01
Dilution Factor: 1

Prep Date.....: 12/26/00

Prep Batch #....: 0361155

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Phenol	ND	330	ug/kg	SW846 8270C
bis (2-Chloroethyl) - ether	ND	330	ug/kg	SW846 8270C
2-Chlorophenol	ND	330	ug/kg	SW846 8270C
1,3-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,4-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,2-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
2-Methylphenol	ND	330	ug/kg	SW846 8270C
2,2'-oxybis (1-Chloro- propane)	ND	330	ug/kg	SW846 8270C
4-Methylphenol	ND	330	ug/kg	SW846 8270C
N-Nitrosodi-n-propyl- amine	ND	330	ug/kg	SW846 8270C
Hexachloroethane	ND	330	ug/kg	SW846 8270C
Nitrobenzene	ND	330	ug/kg	SW846 8270C
Isophorone	ND	330	ug/kg	SW846 8270C
2-Nitrophenol	ND	330	ug/kg	SW846 8270C
2,4-Dimethylphenol	ND	330	ug/kg	SW846 8270C
bis (2-Chloroethoxy) methane	ND	330	ug/kg	SW846 8270C
2,4-Dichlorophenol	ND	330	ug/kg	SW846 8270C
1,2,4-Trichloro- benzene	ND	330	ug/kg	SW846 8270C
Naphthalene	ND	330	ug/kg	SW846 8270C
4-Chloroaniline	ND	330	ug/kg	SW846 8270C
Hexachlorobutadiene	ND	330	ug/kg	SW846 8270C
4-Chloro-3-methylphenol	ND	330	ug/kg	SW846 8270C
2-Methylnaphthalene	ND	330	ug/kg	SW846 8270C
Hexachlorocyclopenta- diene	ND	1600	ug/kg	SW846 8270C
2,4,6-Trichloro- phenol	ND	330	ug/kg	SW846 8270C
2,4,5-Trichloro- phenol	ND	330	ug/kg	SW846 8270C
2-Chloronaphthalene	ND	330	ug/kg	SW846 8270C
2-Nitroaniline	ND	1600	ug/kg	SW846 8270C
Dimethyl phthalate	ND	330	ug/kg	SW846 8270C
Acenaphthylene	ND	330	ug/kg	SW846 8270C
2,6-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
3-Nitroaniline	ND	1600	ug/kg	SW846 8270C
Acenaphthene	ND	330	ug/kg	SW846 8270C

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #....: A0L220165

Work Order #....: DR06T1AA

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,4-Dinitrophenol	ND	1600	ug/kg	SW846 8270C
4-Nitrophenol	ND	1600	ug/kg	SW846 8270C
Dibenzofuran	ND	330	ug/kg	SW846 8270C
2,4-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
Diethyl phthalate	ND	330	ug/kg	SW846 8270C
4-Chlorophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
Fluorene	ND	330	ug/kg	SW846 8270C
4-Nitroaniline	ND	1600	ug/kg	SW846 8270C
4,6-Dinitro- 2-methylphenol	ND	1600	ug/kg	SW846 8270C
N-Nitrosodiphenylamine	ND	330	ug/kg	SW846 8270C
4-Bromophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
Hexachlorobenzene	ND	330	ug/kg	SW846 8270C
Pentachlorophenol	ND	330	ug/kg	SW846 8270C
Phenanthrene	ND	330	ug/kg	SW846 8270C
Anthracene	ND	330	ug/kg	SW846 8270C
Carbazole	ND	330	ug/kg	SW846 8270C
Di-n-butyl phthalate	ND	330	ug/kg	SW846 8270C
Fluoranthene	ND	330	ug/kg	SW846 8270C
Pyrene	ND	330	ug/kg	SW846 8270C
Butyl benzyl phthalate	ND	330	ug/kg	SW846 8270C
3,3'-Dichlorobenzidine	ND	1600	ug/kg	SW846 8270C
Benzo(a)anthracene	ND	330	ug/kg	SW846 8270C
Chrysene	ND	330	ug/kg	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	330	ug/kg	SW846 8270C
Di-n-octyl phthalate	ND	330	ug/kg	SW846 8270C
Benzo(b)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(k)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(a)pyrene	ND	330	ug/kg	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	330	ug/kg	SW846 8270C
Dibenz(a,h)anthracene	ND	330	ug/kg	SW846 8270C
Benzo(ghi)perylene	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	93	(42 - 110)
2-Fluorobiphenyl	84	(43 - 110)
Terphenyl-d14	90	(37 - 137)
Phenol-d5	92	(25 - 115)
2-Fluorophenol	82	(11 - 116)
2,4,6-Tribromophenol	64	(35 - 116)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #....: A0L220165

Work Order #....: DR06T1AA

Matrix.....: SOLID

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A0L220165

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A0L280000-093 Prep Batch #...: 0363093						
Antimony	0.82 B	1.0	mg/kg	SW846 6010B	12/28/00	DR2H91A
		Dilution Factor: 1				
Arsenic	ND	1.0	mg/kg	SW846 6010B	12/28/00	DR2H91A
		Dilution Factor: 1				
Barium	0.17 B	20.0	mg/kg	SW846 6010B	12/28/00	DR2H91A
		Dilution Factor: 1				
Cadmium	ND	0.50	mg/kg	SW846 6010B	12/28/00	DR2H91A
		Dilution Factor: 1				
Chromium	ND	1.0	mg/kg	SW846 6010B	12/28/00	DR2H91A
		Dilution Factor: 1				
Selenium	ND	0.50	mg/kg	SW846 6010B	12/28/00	DR2H91A
		Dilution Factor: 1				
Silver	ND	1.0	mg/kg	SW846 6010B	12/28/00	DR2H91A
		Dilution Factor: 1				
Lead	ND	0.30	mg/kg	SW846 6010B	12/28/00	DR2H91A
		Dilution Factor: 1				
Mercury	ND	0.10	mg/kg	SW846 7471A	12/28-12/29/00	DR2H91A
		Dilution Factor: 1				

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: A0L220165 Work Order #....: DRXMK1AP-MS Matrix.....: SO
 MS Lot-Sample #: A0L220165-015 DRXMK1AQ-MSD
 Date Sampled....: 12/21/00 15:00 Date Received...: 12/21/00
 Prep Date.....: 12/26/00 Analysis Date...: 12/26/00
 Prep Batch #....: 0364241
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	111	(43 - 147)			SW846 8260B
	110	(43 - 147)	0.28	(0-27)	SW846 8260B
Trichloroethene	108	(46 - 143)			SW846 8260B
	105	(46 - 143)	3.3	(0-23)	SW846 8260B
Benzene	112	(55 - 138)			SW846 8260B
	111	(55 - 138)	0.67	(0-20)	SW846 8260B
Toluene	111	(46 - 147)			SW846 8260B
	110	(46 - 147)	1.2	(0-24)	SW846 8260B
Chlorobenzene	105	(49 - 139)			SW846 8260B
	104	(49 - 139)	1.6	(0-22)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	119	(59 - 138)
	120	(59 - 138)
1,2-Dichloroethane-d4	124	(61 - 130)
	126	(61 - 130)
Toluene-d8	116	(60 - 143)
	117	(60 - 143)
4-Bromofluorobenzene	105	(47 - 158)
	104	(47 - 158)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #....: AOL220165 Work Order #....: DRXMF1AQ-MS Matrix.....: SO
 MS Lot-Sample #: AOL220165-012 DRXMF1AR-MSD
 Date Sampled....: 12/21/00 10:50 Date Received...: 12/21/00
 Prep Date.....: 12/26/00 Analysis Date...: 01/03/01
 Prep Batch #....: 0361155
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Phenol	91	(10 - 148)			SW846 8270C
	101	(10 - 148)	11	(0-50)	SW846 8270C
2-Chlorophenol	89	(17 - 116)			SW846 8270C
	95	(17 - 116)	6.8	(0-54)	SW846 8270C
1,4-Dichlorobenzene	90	(18 - 110)			SW846 8270C
	97	(18 - 110)	7.9	(0-59)	SW846 8270C
N-Nitrosodi-n-propyl- amine	83	(12 - 128)			SW846 8270C
	89	(12 - 128)	6.7	(0-50)	SW846 8270C
1,2,4-Trichloro- benzene	90	(16 - 121)			SW846 8270C
	102	(16 - 121)	13	(0-54)	SW846 8270C
4-Chloro-3-methylphenol	86	(17 - 128)			SW846 8270C
	92	(17 - 128)	6.7	(0-55)	SW846 8270C
Acenaphthene	77	(13 - 133)			SW846 8270C
	84	(13 - 133)	8.2	(0-44)	SW846 8270C
4-Nitrophenol	64	(10 - 148)			SW846 8270C
	69	(10 - 148)	8.3	(0-64)	SW846 8270C
2,4-Dinitrotoluene	83	(10 - 171)			SW846 8270C
	89	(10 - 171)	7.0	(0-45)	SW846 8270C
Pentachlorophenol	80	(10 - 144)			SW846 8270C
	90	(10 - 144)	12	(0-87)	SW846 8270C
Pyrene	70	(10 - 218)			SW846 8270C
	63	(10 - 218)	11	(0-66)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	85	(42 - 110)
	96	(42 - 110)
2-Fluorobiphenyl	79	(43 - 110)
	86	(43 - 110)
Terphenyl-d14	75	(37 - 137)
	83	(37 - 137)
Phenol-d5	92	(25 - 115)
	103	(25 - 115)
2-Fluorophenol	79	(11 - 116)
	85	(11 - 116)

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #....: A0L220165

Work Order #....: DRXMF1AQ-MS

Matrix.....: SO

MS Lot-Sample #: A0L220165-012

DRXMF1AR-MSD

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
2,4,6-Tribromophenol	88	(35 - 116)
	92	(35 - 116)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #....: A0L220165

Matrix.....: SO

Date Sampled....: 12/21/00 10:50 Date Received...: 12/21/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A0L220165-012 Prep Batch #....: 0363093						
Antimony	80	(75 - 125)		SW846 6010B	12/28/00	DRXMF1AT
	63 N,*	(75 - 125)	22 (0-20)	SW846 6010B	12/28/00	DRXMF1AU
		Dilution Factor: 1				
Arsenic	93	(75 - 125)		SW846 6010B	12/28/00	DRXMF1AV
	90	(75 - 125)	2.7 (0-20)	SW846 6010B	12/28/00	DRXMF1AW
		Dilution Factor: 1				
Barium	98	(75 - 125)		SW846 6010B	12/28/00	DRXMF1A
	95	(75 - 125)	3.2 (0-20)	SW846 6010B	12/28/00	DRXMF1AA
		Dilution Factor: 1				
Cadmium	98	(75 - 125)		SW846 6010B	12/28/00	DRXMF1A5
	95	(75 - 125)	2.7 (0-20)	SW846 6010B	12/28/00	DRXMF1A6
		Dilution Factor: 1				
Chromium	101	(75 - 125)		SW846 6010B	12/28/00	DRXMF1A7
	97	(75 - 125)	3.7 (0-20)	SW846 6010B	12/28/00	DRXMF1A8
		Dilution Factor: 1				
Selenium	94	(75 - 125)		SW846 6010B	12/28/00	DRXMF1A1
	92	(75 - 125)	2.4 (0-20)	SW846 6010B	12/28/00	DRXMF1A2
		Dilution Factor: 1				
Silver	103	(75 - 125)		SW846 6010B	12/28/00	DRXMF1A ^c
	100	(75 - 125)	2.6 (0-20)	SW846 6010B	12/28/00	DRXMF1CA ^c
		Dilution Factor: 1				
Lead	99	(75 - 125)		SW846 6010B	12/28/00	DRXMF1AX
	94	(75 - 125)	4.1 (0-20)	SW846 6010B	12/28/00	DRXMF1A0
		Dilution Factor: 1				
Mercury	127	(10 - 209)		SW846 7471A	12/28-12/29/00	DRXMF1CC
	110	(10 - 209)	14 (0-20)	SW846 7471A	12/28-12/29/00	DRXMF1CD
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

* Relative percent difference (RPD) is outside stated control limits.

CHAIN OF CUSTODY RECORD

Activity Code:

5-69651